In recent years, Hawaii County Department of Public Works has completed four major federally-funded road projects in Hilo that have significantly improved traffic flow within the community. The center of commercial, agricultural, industrial, and governmental activity in Hawaii County, the City of Hilo covers roughly 58 square miles and is home to nearly 44,000 residents, and the University of Hawaii, Hilo.

Puainako Street Extension
Costing $29.8 million, the Puainako Street Extension Project [Federal Aid Project No. STP-2000(4)] widened, partially realigned, and extended Puainako Street in Hilo.

Such action was critical since commercial development has grown tremendously in the Puainako area and Kaumana Drive has seen an increase in its residential population.

The upper portion of Puainako Street was extended approximately 4.5-miles between Komohana Street and the Saddle Road (State Highway 200, also designated Kaumana Drive) as a two-lane road.

The eastern project terminus is at the intersection of Puainako Street and Komohana Street, and the western terminus is at approximately the 6-mile marker on the Saddle Road.

By extending Puainako Street, arterial traffic flow of the State Highway system was improved by providing a direct link between the existing Puainako Street and the Saddle Road (Highway 200). The project also alleviated congested and unsafe traffic con-
MODERN ROUNDABOUTS NŌ KA ‘ŌI!

By Eric Worrell, FHWA

In 1997 Edmund Waddell, a planner with the Michigan DOT wrote: “Americans often confuse Washington D.C.’s traffic circles with roundabouts. In his 1791 city plan commissioned by President Washington, Major L’Enfant placed circles at strategic points in the Washington Street network. L’Enfant designed the circles for aesthetic and military purposes; he did not anticipate cars.” Washington D.C. traffic circles are not roundabouts.

As automobiles proliferated, various forms of circular intersections proved increasingly problematic. Safety and capacity were reduced because vehicles could not easily enter into high speed traffic with short weaving sections. By the end of World War II, the circular intersection died in the U.S.

Post war Britain, on the other hand, strapped for funds to be pursuing grade separated interchanges, continued to study rotaries and other circular intersections. Institution of the offside priority rule (traffic yields on entry) as National policy in 1966 resulted in increased intersection capacity and a dramatic drop in injuries. Through the 70’s and 80’s the rest of Europe and Australia started installing “Modern Roundabouts” and reported dramatic reductions in injuries and delays.

Definitions for Modern Roundabouts vary, but the following features are mandatory to distinguish them from other forms of traffic circles:

- Traffic entering the circle yields to traffic already in the circle.
- Pavement markings and raised islands divert traffic into a one-way counterclockwise flow (clockwise in Britain).
- The diameter of the inscribed (outer) circle and entry geometry are designed to induce speed reduction (typically, 85 percentile speed between 15 and 25 mph).

A handful of American highway professionals, most notably Ken Todd and Leif Ourston, fought to bring the improved technology back to the U.S. In 1990, the first two U.S. roundabouts were built by Howard Hughes properties north of Las Vegas and in 1993 the Maryland DOT built the first roundabout on a State system at the rural intersection of SR 144 and SR 94I. This previously stop-controlled intersection saw a 70% drop in crashes with a 90% drop in injuries.

In 2006 the Denver Post reported over a thousand roundabouts on the U.S mainland. By 2007, at least ten modern roundabouts have been constructed in Hawaii, A New York rotary (outer circle) being replaced with a modern roundabout (inner circle) with bypass lanes. The newer design is expected to carry 10% more traffic than the prior design with fewer crashes. Photo NYDOT.
WAINIHA BRIDGE REPLACEMENT

By Raymond McCormick, HDOT

Background

The Wainiha Bridges Number 1 and 3 are located on Kauai's North Shore. These single lane bridges carry an average daily traffic volume of more than 5,000 vehicles per day. They are the lifeline for access to businesses, residences, great surfing spots, and some of the most beautiful scenery in the world.

Both bridges were originally constructed in 1904 as wood through-truss structures. No. 1 and the western part of No. 3 were reconstructed in 1957 after a tsunami destroyed them. The eastern span of No. 2 was constructed in 1966 after a collapse.

The reconstructed bridge No. 1 was a single span consisting of a steel kingpost truss superstructure 42 feet in length by 11 feet in width. The truss consisted of six steel beams supported by six vertical posts. These posts were supported by two steel rods each. The steel rods supported the posts and the beams.

Bridge No. 3 was a steel queen post truss design, 170 feet in length by 11 feet in width. It had three spans, two of the spans measured 75 feet in length and the third span was 20 feet long. The truss consisted of six steel beams supported by two posts located along the 75 foot spans. These posts were supported by two steel rods each.

For the past few years the Hawaii Department of Transportation (HDOT) and its consultant have been working with the community to replace these historically sensitive bridges. An in-depth inspection on October 3, 2007 revealed that the steel beams, posts, and the rods had incurred significant section loss from corrosion. In fact, some of the steel rods had less than twenty-five percent of the original sections remaining. Fearing failure, the HDOT immediately restricted the loads and scheduled a load test of the bridges.

On October 24, 2007, the load test revealed that the maximum safe load for both bridges should be no more than three tons, a restriction that would cause severe impact to the community. For example, the county's small fire engine weighed twelve tons. Also, ambulances and trucks used for trash pickup and the delivery of fuel, groceries and propane weighed more than the three ton limit.

Emergency Repairs

On October 25, 2007, while the HDOT was wrestling with the numerous issues involved in expediting the replacement of the bridges to minimize these impacts, an overloaded vehicle damaged or broke all but two of the twelve steel rods of bridge No. 3. The bridge had sagged approximately three inches and was swaying vertically and horizontally as lightweight vehicles crossed over the top.

Faced with the decision to immediately close the bridge or to attempt emergency repairs until replacement, the HDOT Kauai District Bridge Maintenance crew volunteered to attempt an emergency fix. The Kauai District North Side Maintenance Crew volunteered to help with traffic control, and volunteers from the other Maintenance Sections within the District stepped up as well.

Fortunately, welder qualifications are one of the job requirements for the Bridge Maintenance Crew. This made it possible for the district to attempt the emergency repairs. In addition, our Vehicle Maintenance Shop personnel are also qualified welders and one of them volunteered to help.

It was about 10:00 on Friday morning October 26th when the damage was discovered. By early afternoon the traffic control was in place, the two needed welding machines were on site and all of the materials needed to accomplish the project were ready to go. The crews positioned themselves on make-shift scaffolding to reach the rods and, they used come-alongs to stress the rods and hold them together so that they could be welded. By 10:00 on Friday evening the crews had successfully restored fifty percent of the rods. This was adequate to allow light traffic to use the bridge. Over the next week, crews continued to work under the bridge to complete the welding and repairs necessary to restore it to its former ability to carry the light loads.

Temporary Replacement

In the meantime, the HDOT contacted the Governor's Office to obtain an emergency proclamation for the temporary replacement of the defective bridges. The Proclamation was signed by the Honorable Governor

(Continued on Page 6)
NEWS FROM OUR PARTNERS...

Cement and Concrete Products Industry of Hawaii

By Wayne Kawano, CCPI of Hawaii President

Aloha! We certainly started off the year on solid foundation by sponsoring the workshop on Cement Base Applications for Pavements. Over 120 attendees were all captivated with a better understanding on how cement bases work and the various applications for pavement design.

A Big Mahalo to the LTAP staff for coordinating this workshop and to the Portland Cement Association for sponsoring our excellent presenter, Greg Halsted. Also, Mahalo to Brandon Hee, from State DOT Hwy-L for presenting the DOT’s experiences with Cement Treated Base (CTB) and Concrete Overlays.

In Hawaii, it’s been a continual challenge to properly maintain and rehabilitate our aging roadway infrastructures. Merely covering up surface failures isn’t the answer. In most cases, the problem resurfaces again...much too soon. The answer lies beneath the surface. After years of undergoing a tremendous volume of vehicles and heavy truck loads, the pavement bases are failing...having far exceeded their design service life. It would be costly to remove and replace these bases with virgin aggregate materials. Instead, we can reclaim the existing base materials in-place and treat them with cement. Full depth reclamation is a sustainable process as this reduces the use of virgin aggregates. The resulting in CTB becomes an extremely dense, well blended, and highly compacted stratum, which increases rigidity, reduces fatigue cracking and surface wear. This means, longer lasting pavements for our state or local roadways, highways, airport runways or taxiways, port facilities, trucking facilities, parking lots...a multitude of applications. For more information on the cement treated base workshop or other concrete related inquiries...contact CCPI at wkawano@ccpihawaii.org. You can also log on to PCA www.cement.org/pavements. Mahalo!

Hawaii Society of Professional Engineers

WAIAKEA INTERMEDIATE TAKES FIRST IN THE 25th HAWAII STATE MATHCOUNTS COMPETITION

Life gets interesting for most people when the out of the ordinary happens. It makes reporting an event rousing. So on Saturday, March 8, 2008, Waiakea Intermediate School of the Big Island pulled off an unexpected victory by placing first at the 2008 25th Hawaii State MATHCOUNTS Competition at Kamehameha Schools Kalama Dining Hall. Waiakea Intermediate beat the two prestigious private schools Iolani and Punahou who had dominated the competition for years. To make matters even more interesting, Waiakea Intermediate had won the very first Hawaii MATHCOUNTS competition 25 years ago.

Waiakea team members are Patrick Peng, Mark Seu, Katherine Torigoe, and Liann Yamashita. Their proud coaches are Arlene Cabalce-Yamakawa, Tanya Lee, and Mike Cumiskey. They made history and took home the MATHCOUNTS Hawaii State 1st Place Perpetual Trophy. With this victory Coach Cabalce-Yamakawa will be the official Hawaii State Team Coach at the MATHCOUNTS National Finals in Denver, Colorado on May 9, 2008.

The students accompanying Cabalce-Yamakawa and representing the State of Hawaii at the National are the top four Mathletes in the Countdown Round. They are first place, Mark Seu of Waiakea; second place, Naoki Shigeta of Washington Middle; third place, Daron Lee of Highlands Intermediate; and fourth place, William Chen of Punahou.

As a team Waiakea was followed by Punahou in second, Washington Middle third, Iolani fourth, Highlands Intermediate fifth and Stevenson Intermediate sixth.

MATHCOUNTS is a national math competition for 6th, 7th and 8th graders. Students compete individually in the Sprint

(Continued on Page 5)
Round solving 30 math problems in 40 minutes. Next comes the Target Round where students try to solve eight problems within approximately 30 minutes. The Team Round finishes the written portion of the competition. In this round students work together solving 10 problems in 20 minutes. In the Countdown Round, the 10 competing students are chosen based on their individual scores.

State MATHCOUNT teams from all 50 states, the District of Columbia, U.S. territories and State Department and Department of Defense schools worldwide will compete in the National Finals in Denver, Colorado on May 9, 2008. The 228 Mathletes® competing in the Lockheed Martin MATHCOUNTS National Competition represent more than 500,000 students who participate in MATHCOUNTS at the school level.

Of the 25 years in Hawaii, MATHCOUNTS competitions have been at Kamehameha Schools for more than 15 years. Hawaii MATHCOUNTS has been very fortunate to use their excellent facilities and sincerely thanks Dr. Michael Chun and Kamehameha Schools for their generosity and hospitality.

The current MATHCOUNTS Steering Committee Coordinators are Rowena Blaisdell and Pauline Marcello, both of Kamehameha Schools. They manage the Oahu Chapter and State competitions for HSPE with the help of the educator and engineer Steering Committee volunteers.

HSPE continues to be the sponsor of MATHCOUNTS, assisting Dr. Chun, Blaisdell and Marcello, financially and participating on the Steering Committee. HSPE conducts fundraisers to help provide the funds to successfully run the competition. Other major sponsors are Aloha Airlines and Hawaiian Electric Company, Inc.

NEWS FROM OUR PARTNERS... (Continued from Page 4)

By C.S. Papacostas, Hawaii LTAP

Thrum’s Hawaiian Annual for 1897 noted that “besides the continual improving of Honolulu thoroughfares, to keep pace with its increased business and extending area, considerable work has been done to meet the demand for new or improved roads by the developing interests in North and South Kona, Hilo, and Puna, on the island of Hawaii, and the opening up of a new road from Makena to the Kula agricultural settlement, on Maui. Koloa, Kauai, has also come in for its share of attention.”

Move the clock forward to 1925. Since 1909, the number of registered cars increased from 278 to 14,542, and the Honolulu Automobile Club had been formed as an affiliate of the American Automobile Association. In that year’s issue of Thrum’s, the club’s president, LeRoy Blessing, wrote a long article titled “Hawaii’s Highways and Her Traffic Problem.”

Blessing bemoans the fact that until then, automobile owners in Hawaii were paying motor vehicle taxes but the territory was not eligible for federal funding under the Federal Aid act of 1916. By the way, to become eligible for federal funds, the Territory had to designate a Highway Department.

“For the convenience of its members and visiting tourists who travel with their own automobiles,” Blessing continued, “the automobile club maintains a mechanical first-aid department with two experienced mechanics mounted on motorcycles and side cars on call at any hour of the day or night.”

He also explained that the club’s shipping department arranged for moving cars between the mainland and Hawaii, and that, as a contributor to the National Safety Council, the club conducted several “safety first” initiatives, sponsored “the system of boy traffic cops at schools,” and cooperated closely with government officials “to promote any reasonable highway construction program.”
Linda Lingle on October 29, 2007. By that time, the HDOT had made initial contact with Hawaiian Dredging Construction Company on the preliminary replacement plans. Hawaiian Dredging had replaced Wainiha Bridge Number 2 (see Hawaiian Connections Winter 2004 for details) with an Acrow Bridge two years earlier after the original bridge had failed and could mobilize immediately. The Acrow Bridge Corporation advised the HDOT that they could have the bridges on Kauai within four weeks of an order being placed.

The contractor began work in early November. No. 3 was first strengthened by adding more supports for the beams so that it could safely handle the construction and was stabilized by post-tensioning.

The new temporary bridges were a few feet wider than the existing structures. This widening provided more space for bicycle and pedestrian traffic and also for the contractor to install the side trusses with minimal impact to traffic. For Bridge No. 1, the existing abutments required some modifications to accommodate the new width. The side trusses were constructed for the entire length of this bridge and they were carried into place.

For Bridge No. 3, the pier caps required widening and new abutments had to be constructed adjacent to and just ahead of those in place. This made the new bridge slightly longer than the existing bridge; however, without the new abutments it would have been impossible to construct the new bridge with the old bridge in operation. The widened pier caps and the new abutments provided a platform for the contractor to use in his launching operation. Rollers were installed on the widened pier caps and the newly constructed abutments. The contractor then fabricated enough of the bridge side truss to reach from the new abutment to the first pier. This was about eighty feet of truss. The section of truss was carried into place over the newly installed rollers. Now that this section was in place, the contractor installed one ten foot section of truss at a time while pushing the section across to the other pier and eventually to the end abutment. The process required the contractor to fabricate the ten foot sections of truss on the adjacent roadway, carry them to the bridge, connect them to the already placed truss, then push and pull them along the rollers.

With the side trusses in place, the contractor then began preparation for the installation of the transom beams and the bridge decking. This operation would require a 24 hour closure of the highway. News releases were sent out, emergency services were coordinated, and the local public schools were notified. Emergency Services placed vehicles on standby across the bridge, the contractor provided a boat and shuttle service for the businesses and residents, and arrangements were made for all construction activity to stop while elementary school children were escorted over the unfinished bridges at the end of the school day.
With the logistical challenges taken care of, the highway was closed at 8:00 a.m. on December 19, 2007. The contractor immediately began work at both sites. The existing Bridge No. 1 was removed in pieces so that the new bridge could be placed. The contractor used chain saws, wrecking bars, a lot of muscle, and lifting equipment to remove the existing bridge. The transoms (cross beams) were then placed. As these were placed, the crews immediately installed the decking panels and Bridge No. 1 was completed by noon.

Bridge No. 3 presented more challenges. Removing the decking proved to be time consuming; the old bridge did not want to go! About midway, the contractor stopped removing the old deck and proceeded with the installation of the new transoms and decks. The old bridge remained in place under the new construction.

By midnight on December 19, 2007 the contractor had successfully installed both bridges. The roadway was opened to traffic and over the next several weeks the contractor continued with the tedious operation of removing the old Bridge No. 3. He also installed concrete pedestals on which the new bridge bearings were placed. The temporary bridge was lowered into its final location on Tuesday, February 26, 2008.

Merely 55 days passed from the date of the bridge failure to the time of replacement. The staff of the Hawaii Department of Transportation in Honolulu and on Kauai worked many long hours to accomplish this project in such a short time. Many people were involved in making this project happen. We owe a lot of appreciation to many professionals and especially for the cooperation of the Governor’s office.
HAWEI COUNTY DPW MAKING HILO STREETS SAFE AND EFFICIENT (Continued from Page 1)

Kawaihali Street Bridge Replacement
When East Hawaii experienced record-breaking flooding in November 2000, the Waiakea River flood channel in South Hilo was clogged with debris and the resulting back up of water flooded several nearby homes, one of which was destroyed. As a result, the Kawaihali Street Bridge Replacement Project [Federal Aid Project No. BR-2760(003)] was proposed to realign the flood channel in order to handle more water, as well as install a wall in the middle of the channel to reduce the risk of water rising over the banks in future floods.

The project replaced the hydraulically inadequate bridge, as well as upstream and downstream channel improvements.

The existing Kawaihali Street Bridge, box culverts, approach pavement, guardrails, retaining walls, and invert slab were demolished. A new bridge was built with concrete approach slabs, asphalt pavement, guardrail, channel walls, and invert slab, and the existing streambed was deepened and the side slopes stabilized.

Notice to proceed was issued on September 27, 2004 and the project was completed on March 10, 2005, a total of 165 consecutive calendar days. Hawaiian Dredging Construction Company, Inc. of Honolulu, Hawaii, was awarded the $7.2 million contract. Federal funds covered $5 million of the project costs with the remaining $2.2 million paid by state/county funds.

The Kawaihali Street Bridge Replacement Project was positively received by the community as it helped those people living immediately upstream of the bridge by reducing the risk of future flooding.

Hilo experienced tremendous heavy rains and flooding in the first few days of February 2008 with Mayor Harry Kim declaring a state of emergency for several districts around Hawaii County, including Hilo.

“We’re very pleased with Kawaihali Bridge,” said Bruce McClure, Director of Hawaii County Public Works. “It’s a clear span with no center column, so it could handle larger debris.”

Komohana Street Bridge at ‘Alenaio Stream
This project was featured in the Hawaiian Connections Spring 2001. Please see http://hltap.eng.hawaii.edu/NEWSLETTER/sp01/spring2001.pdf for details.

Update:
Following the severe flood event of February 2008, McClure declared that the bridge worked very well. “These improvements really showed their worth in these recent storms,” he said.
MODERN ROUNDABOUTS NO KA ‘OI! (Continued from Page 2)

all single lane and mostly small compact circles, although larger circles have been built on Ford Island and within Oahu Regional Park.

In 2000, FHWA published its nearly 300-page “Roundabouts: An Informational Guide” and spearheaded a national training effort including four one-day workshops with the Hawaii LTAP in 2003. Also in 2003, FHWA’s brochure “Your Community Deserves a Lot Less” touts the following benefits commonly associated with roundabouts:

• Safety
  o 90% less fatalities
  o 76% less injury crashes
  o 30-40% less pedestrian crashes

• Environmental Stewardship
  o Less pollution and fuel use
  o Less storage lanes (less pavement)
  o Community benefits such as traffic calming and aesthetic landscaping

• Congestion Mitigation
  o 30% or more increase in intersection traffic capacity
  o Less motorist delay

The latest Federal highway funding bill, SAFETEA-LU, lists roundabouts as eligible for 100% federal funding and the 2003 MUTCD includes roundabouts in a list of alternatives to consider, even when one or more signal warrants are met. The U.S. Access-Board has developed guidance for designing pedestrian crossings at roundabouts for people with visual impairments and other vulnerable pedestrians such as young children.

Several states and cities now routinely consider roundabouts as an alternative to traditional intersection design, a handful as result of local legislation, but most simply because their traffic and design personnel have recognized the benefits.

For example, Colorado DOT considers roundabouts when cities request them. In 2006 the “Denver Post” reported over 200 roundabouts in Colorado and many more in design. Brian Walsh of the Washington DOT, reports that 41 jurisdictions in that State have one or more roundabouts on the ground.

A search of FHWA’s website using the keyword “roundabouts” returned 769 hits on intersection safety, Access Management, the needs of people with Visual Impairments, Bicycle and Pedestrian Safety and many more! FHWA, now recognizes the Modern Roundabout as “nō ka ‘oi” (simply the best) form of at-grade intersection traffic control.

Better Mousetrap?

Have you or one of your co-workers built a better mousetrap recently? A modified gadget? An improved way to do a job?

Please let us know about it. The best entries will be featured in a future issue of Hawaiian Connections.

Your name and phone number:

______________________________
Inventor’s name and phone:

______________________________
Invention:

Please fax this form to (808) 956-8851.
Director's Note
by C.S. Papacostas

As I said in the Spring 2007 issue, a 12-member National Commission was established pursuant to Section 1909 of SAFETEA-LU to study comprehensively federal surface transportation policy and future revenue sources. Originally expected to issue its report in July of last year, the Commission finally released its findings in January of this year.

As expected by those of us who follow policy in this area, the Commission was not able to reach consensus: A majority of 9 members approved a set of findings. Led by Commission Chair and US Secretary of Transportation Mary E. Peters, the remaining three members dissented and issued a minority statement.

In summary, the majority recommended a continuing strong federal role; streamlining regulations, project delivery and environmental procedures; and setting priorities based on performance standards. They proposed fuel tax increases to be eventually replaced by “mileage-based user fees,” more flexible use of tolling and pricing strategies and, subject to certain conditions intended to protect the public interest, increased reliance on public/private partnerships.

The minority report vehemently opposed major reliance on taxes, preferring “pricing as the essential element in a proper alignment of supply and demand.” They envision a shift of responsibility from the federal to state governments, and less restricted dependence on the private sector.

Resolution of these differences is a prerequisite to the passage and signing into law of the reauthorization of the federal surface transportation bill.

Program Manager’s Note
by Juli Kobayashi

2008 is starting to be another busy year and we are excited about some of our upcoming scheduled workshops:

- May 7 ~ Managing Risk in Construction Projects (Along with ACECH, ASCE, & APWA)
- May 28 -29 ~ Hawaii Motor Fuel Workshop
- July 1 ~ Emergency Relief Manual Training
- September 8 – 10 ~ Context Sensitive Solutions
- September 17 – 19 ~ 8th Annual Superintendent/Overseers Conference
- October 23 or 24 ~ Construction Career Days

*If you would like to get involved in the coordination and planning of our next CCD event, meetings are held at HCC every 1st Friday of the month at 9:00 a.m. For more information please visit our new CCD website at http://hltap.eng.hawaii.edu/ccd/

Some of the unscheduled workshops that we are currently working on are:

- Asphalt & MS4 Inspection Workshop
- Planning and Designing for Pedestrian Safety Workshop
- Urban Drainage Design
- Heavy Equipment Training
- Chain Saw Training
- Basic Relocation under the Uniform Act

Please continue to visit our website at: http://hltap.eng.hawaii.edu/ for more information on each workshop. We would also like to encourage you to send in your workshop requests so that we can fulfill your training needs.

Mahalo

Hawaiian Connections features scenic pictures from various locations in Hawaii. (Photos courtesy of the Hawaii Visitors and Convention Bureau).

In this issue, we are featuring the State Bird of Hawaii, the Nene. The Nene is a land bird descended from the Canadian goose. It has adapted itself to life on the hard lava rock by evolving from fully webbed feet to clawed feet for better gripping. Although these endangered birds are friendly to people, it is unlawful to touch, feed, harass, or chase the Nene. Nene mate for life and are often spotted in pairs or groups of even numbers.
HAWAII LTAP NEWS

2008 HAWAI‘I CONSTRUCTION CAREER DAYS

The Future of Hawai‘i’s Construction Industry Depends On YOU!

For High School Students Grades: 9 - 12

Thursday, October 23, 2008
or Friday, October 24, 2008
at Honolulu Community College
874 Dillingham Blvd.
Honolulu, HI 96817

Visit us on the web at:
www.hltap.eng.hawaii.edu/ccd

Creating Opportunities For Hawai‘i’s Youth

Will feature:
• Hands on activities
• Operation of heavy equipment
• Interactive exhibits and trade displays
• Demonstration projects
• Architecture and Engineering

For more information please contact:

Juli Kobayashi
Hawaii Local Technical Assistance Program (LTAP)
Phone: (808) 956-9006
Email: juli@hawaii.edu

Melanie Martin
Hawaii Department of Transportation (HDOT)
Phone: (808) 587-2023
Email: melanie.martin@hawaii.gov

Hawaii Local Technical Assistance Program
The Hawaii Local Technical Assistance (LTAP) is a cooperative program of the University of Hawaii Department of Civil and Environmental Engineering, the Hawaii Department of Transportation, Highway Division, State of Hawaii and the U.S. Department of Transportation Federal Highway Administration, Hawaii. The LTAP program provides technical assistance and training programs to local transportation related agencies and companies in order to assist these organizations in providing cost-effective improvements for the nation’s highways, roads and bridges. Our office is located at:

Hawaii LTAP
Department of Civil and Environmental Engineering
University of Hawaii at Manoa
2540 Dole Street - Holmes Hall 383
Honolulu, Hawaii  96822

Please contact:
C.S. Papacostas, Director
Tel: (808) 956-6538
Fax: (808) 956-5014
E-mail: csp@eng.hawaii.edu

or
Juli Kobayashi, Program Manager
Tel: (808) 956-9006
Fax: (808) 956-8851
E-mail: juli@eng.hawaii.edu

Website:
http://hltap.eng.hawaii.edu/

The contents of this newsletter do not necessarily reflect the official views or policies of the HDOT, FHWA or the University of Hawaii. The newsletter is intended to convey useful information to the local highway and transportation personnel. Any references to commercial products or organizations are included only for informational purposes and are not intended as endorsements by the Hawaii LTAP.